

CLAIMS

1. An active carbon comprising an alkaline earth metal compound in the inside of the particle and having a BET
5 specific surface area of 10 to 2,000 m²/g as determined by a nitrogen adsorption method.

2. The active carbon as claimed in claim 1,
wherein the alkaline earth metal compound is at least one
10 alkaline earth metal compound selected from the group consisting of beryllium, magnesium, calcium, strontium, barium and radium.

3. The active carbon as claimed in claim 1 or 2,
15 wherein the alkaline earth metal compound is at least one member selected from the group consisting of alkaline earth metal and oxides, hydroxides, chlorides, bromides, iodides, fluorides, phosphates, carbonates, sulfides, sulfates and nitrates of an alkaline earth metal.

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4. The active carbon as claimed in claim 3,
wherein the alkaline earth metal compound is calcium compound.

25 5. The active carbon as claimed in claim 1, wherein the alkaline earth metal compound is a particle having a particle size of 10 μm or less.

6. The active carbon as claimed in claim 1,
30 wherein the content of the alkaline earth metal compound is from 30 to 100,000 ppm by mass.

7. The active carbon as claimed in claim 1,

wherein the ratio of the peak height of D peak ($1,360\text{ cm}^{-1}$) to the peak height of G peak ($1,580\text{ cm}^{-1}$) in the Raman spectrum is from 0.8 to 1.2.

5 8. The active carbon as claimed in claim 1, wherein the volume of pores having a pore size of 20 to 50 \AA is in the range of 0.02 ml/g or more as determined by the BJH method using the nitrogen adsorption method.

10 9. An active carbon wherein a porous carbon layer comprising hardly-graphatizable carbon is coated on the active carbon as claimed in claim 1.

15 10. The active carbon as claimed in claim 9, wherein the volume of pores is in the range of 0.01 to 1.55 ml/g as determined by the nitrogen adsorption method.

20 11. The active carbon as claimed in claim 9, having an average particle size of $3\text{ }\mu\text{m}$ to $70\text{ }\mu\text{m}$.

25 12. The active carbon as claimed in claim 1, which substantially does not contain a particle having an average particle size of $1\text{ }\mu\text{m}$ or less and/or $100\text{ }\mu\text{m}$ or more.

30 13. The active carbon as claimed in claim 1 or 9, which is used for a polarizable electrode in an electric double layer capacitor.

35 14. A polarizable electrode comprising the active carbon claimed in any one of claims 1 to 13.

15. A polarizable electrode comprising the active carbon claimed in any one of claims 1 to 13 and a vapor grown carbon fiber.

5 16. The polarizable electrode as claimed in claim 15, wherein the vapor grown carbon fiber has a hollow structure and has an outer diameter of 2 to 500 nm and an aspect ratio of 10 to 15,000.

10 17. The polarizable electrode as claimed in claim 15, wherein the vapor grown carbon fiber has a pore volume of 0.01 to 0.4 ml/g and a BET specific surface area of 30 to 1,000 m²/g as determined by the nitrogen adsorption method.

15 18. The polarizable electrode as claimed in claim 15, wherein the spacing of the (002) face of the vapor grown carbon fiber, d_{002} , is 0.3395nm or less.

20 19. The polarizable electrode as claimed in claim 15, wherein the vapor grown carbon fiber is a branched fiber and the hollow structure of the branched part communicates with each other.

25 20. The polarizable electrode as claimed in claim 15, wherein the vapor grown carbon fiber is mixed in the amount of 0.1 to 20 mass% of the carbon powder material.

30 21. The polarizable electrode as claimed in claim 15, wherein the vapor grown carbon fiber is fusion bonded to the surface of the active carbon.

22. An electric double layer capacitor using the

polarizable electrode claimed in any one of claims 14 to 21.

23. The electric double layer capacitor as
5 claimed in claim 22, which uses an organic electrolytic solution obtained by dissolving an electrolyte in an organic solvent.

24. The slurry containing the active carbon as
10 claimed in any of claims 1 to 13.

25. The paste containing the active carbon as claimed in any of claims 1 to 13.

15 26. The electrode plate, wherein the active carbon as claimed in any of claims 1 to 13 is applied on the surface.

27. The energy device containing an electric
20 double layer capacitor as claimed in claim 22.

28. A method for producing an active carbon, comprising a step of adding an alkaline earth metal compound to a raw material of active carbon and heat-
25 treating it, and a step of mixing the carbonized product produced by the heat treatment with an alkali metal compound and heating and thereby activating it.

29. A method for producing an active carbon,
30 comprising a step of adding an alkaline earth metal compound to a raw material of active carbon and heat-treating it in the vapor of an alkali metal compound, and a step of mixing the carbonized product produced by the

heat treatment with an alkali metal compound and heating and thereby activating it.

30. The method for producing an active carbon as
5 claimed in claim 28 or 29, wherein the temperature of performing the heat treatment step is kept in a range from 400 to 600°C and in a range from 600 to 900°C.

31. The method for producing an active carbon as
10 claimed in claim 28, wherein the alkali metal compound is an alkali metal hydroxide.

32. The method for producing an active carbon as
15 claimed in claim 28 or 29, wherein the alkali metal compound is a compound containing at least one member selected from the group consisting of potassium, sodium and cesium.

33. The method for producing an active carbon as
20 claimed in claim 28 or 29, wherein the carbonized product is an easily graphitizable carbon.